

### AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions of claims in the application:

#### **Listing of Claims:**

1. (Currently Amended) A ~~transmission~~ method for reducing cross-polarization interference in a wireless communication system, comprising:

generating first data to be transmitted from a first transmission terminal;

~~encoding encoding the both first and second nominally orthogonal polarization signals~~  
first data with a same long code at the first terminal to produce a first long-encoded signal; and

applying a first polarization to the first long-encoded signal to produce a first long-encoded, polarized signal;

generating second data to be transmitted from a second transmission terminal;

encoding the second data with the long code at the second terminal to produce a second long-encoded signal;

applying a second polarization to the second long-encoded signal to produce a second long-encoded, polarized signal;

transmitting the first and second long-encoded, polarized first and second nominally orthogonal polarization signals from the respective first and second transmission terminals, respectively, transmission sources to at least one destination.

2. (Currently Amended) The method of Claim 1, further comprising:

~~orthogonalizing plural sub-channels of each of the first and second nominally orthogonal polarization signals~~ data by applying respective plural mutually distinct Walsh codes in each sub-channel.

3. (Currently Amended) The method of Claim 2, wherein the orthogonalizing step includes:

applying different Walsh codes to different respective data signals originating from different respective users of the communication system.

4-6. Canceled.

7. (Currently Amended) A communication method including the transmission method of Claim 1 and further comprising:

~~at the destination, receiving the encoded first and second long-encoded, polarized nominally orthogonal polarization signals; and~~

separating the first long-encoded, polarized signal from the second long-encoded, polarized signal in accordance with their respective polarizations to produce a first long-encoded communication signal and a second long-encoded communication signal;

applying the same long code to the received encoded first and second long-encoded communication nominally orthogonal polarization signals received at the destination to produce the first and second data.

8. (Currently Amended) A method of demodulating first data transmitted from a first transmission source and second data transmitted by a second transmission source, the first data transmitted as a first long-encoded, polarized communication signal having a first polarization and the second data transmitted as a second long-encoded, polarized communication signal having a second polarization ~~nominally orthogonal polarization signals that were transmitted from respective first and second transmission sources after having been encoded with a same long code,~~ the method comprising:

~~receiving the encoded first and second nominally orthogonal polarization signals long-encoded, polarized communication signals; and~~

separating the first long-encoded, polarized communication signal from the second long-encoded, polarized communication signal in accordance with their respective polarizations to produce a first long-encoded communication signal and a second long-encoded communication signal;

applying a the same long code to the received encoded first and second long-encoded communication nominally orthogonal polarization signals to produce first and second decoded signals;

applying a first orthogonal code to the first decoded signal to produce the first data; and  
applying a second orthogonal code to the second decoded signal to produce the second data.

9-12. Canceled

13. (Currently Amended) A communication method including the demodulating method of Claim 8 and further comprising:

encoding both the first data and second nominally orthogonal polarization signals with the same long code at the first transmission source to produce the first long-encoded communication signal; and

applying the first polarization to the first long-encoded communication signal to produce the first long-encoded, polarized communication signal;

encoding the second data with the long code at the second transmission source to produce the second long-encoded communication signal;

applying the second polarization to the second long-encoded communication signal to produce the second long-encoded, polarized communication signal; and

transmitting the long-encoded, polarized first and second long-encoded, polarized communication nominally orthogonal polarization signals from the respective first and second transmission sources, respectively, to at least one destination at which the demodulating method is performed.

14. Canceled

15. (Currently Amended) A computer-readable storage medium having computer usable instructions stored thereon for execution by a processor to perform a method comprising: program product storing program instructions for execution on a computer system having at least one data processing device, whose instructions when executed by the computer system cause the computer system to perform the method of Claim 1

encoding first data with a long code at a first terminal to produce a first long-encoded signal;

applying a first polarization to the first long-encoded signal to produce a first long-encoded, polarized signal;

encoding second data with the long code at a second terminal to produce a second long-encoded signal;

applying a second polarization to the second long-encoded signal to produce a second long-encoded, polarized signal;

transmitting the first and second long-encoded, polarized signals from the first and second terminals, respectively, to at least one destination.

16. (Cancelled)

17. (Currently Amended) A computer-readable storage medium ~~program product~~ having computer usable instructions stored thereon for execution by a processor to perform a method comprising:

~~storing program instructions for execution on a computer system having at least one data processing device, whose instructions when executed by the computer system cause the computer system to perform the method of Claim 8~~

receiving first and second long-encoded, polarized communication signals;

separating the first long-encoded, polarized communication signal from the second long-encoded, polarized communication signal in accordance with their respective polarizations to produce a first long-encoded communication signal and a second long-encoded communication signal;

applying a long code to each of the first and second long-encoded communication signals to produce first and second decoded data;

applying a first orthogonal code to the first decoded signal to produce the first data; and

applying a second orthogonal code to the second decoded signal to produce the second data.

18. (Currently Amended) A system configured to ~~perform the method of Claim 1~~ reduce cross-polarization interference, comprising:

a first terminal, comprising:

a first data generator for generating first data;

a first long code generator for generating a long code;

a first mixer for encoding the first data with the long code to produce a first long-encoded signal; and

a first polarizer for applying a first polarization to the first long-encoded signal to produce a first long-encoded, polarized signal;

a second terminal, comprising:

a second data generator for generating second data;  
a second long code generator for generating the long code;  
a second mixer for encoding second data with the long code to produce a second long-encoded signal; and  
a second polarizer for applying a second polarization to the second long-encoded signal to produce a second long-encoded, polarized signal; and  
a transmitter for transmitting the first and second long-encoded, polarized signals from the first and second terminals, respectively, to at least one destination.

19. (Cancelled)

20. (Currently Amended) A receiver, comprising: A system configured to demodulate  
~~perform the method of Claim 8~~

an antenna for receiving first and second long-encoded, polarized communication signals;  
an ortho-mode transducer for separating the first and second long-encoded, polarized communication signals based on their respective polarizations to produce a first long-encoded communication signal and a second long-encoded communication signal;  
a first mixer for applying a long code to the first long-encoded communication signal to produce a first decoded communication signal;  
a second mixer for applying a long code to the second long-encoded communication signal to produce a second decoded communication signal;  
a third mixer for applying a first orthogonal code to the first decoded signal to produce the first data; and  
a fourth mixer for applying a second orthogonal code to the second decoded signal to produce the second data.

21. (Currently Amended) A transmission system comprising:

means for encoding ~~both first data and second nominally orthogonal polarization signals~~  
~~with a same long code at a first terminal to produce a first long-encoded signal;~~

means for applying a first polarization to the first long-encoded signal to produce a first long-encoded, polarized signal;

means for encoding second data with the long code at a second terminal to produce a second long-encoded signal;

means for applying a second polarization to the second long-encoded signal to produce a second long-encoded, polarized signal;

~~first~~ means for transmitting the first long-encoded, polarized ~~first nominally orthogonal polarization signal from a first source~~ to a receiver at least one destination; and

~~second~~ means for transmitting the second long-encoded, polarized ~~second nominally orthogonal polarization signal from a second transmission source~~ to at least one the receiver destination.

22. (Currently Amended) The system of Claim 21, further comprising:

~~means for orthogonalizing plural sub-channels of each of the first data and second nominally orthogonal polarization signal; and by applying respective plural mutually distinct Walsh codes in each sub-channel~~

means for orthogonalizing the second data.

23. (Currently Amended) The system of Claim 22, wherein each of the ~~orthogonalizing~~ means for orthogonalizing comprises ~~includes~~:

~~means for applying different Walsh codes to different respective data signals originating from different respective users of the transmission communication system.~~

24. Canceled

25. (Currently Amended) A communication system including the transmission system of Claim 21 and further comprising:

~~means for receiving the encoded first and second~~ long-encoded, polarized communication ~~nominally orthogonal polarization signals; and~~

means for separating the first and second long-encoded, polarized communication signals based on their respective polarizations to produce a first long-encoded signal and a second long-encoded signal, respectively; and

means for applying the ~~same~~ long code to the received ~~encoded~~ first and second long-encoded communication nominally-orthogonal polarization signals received at the destination to produce the first and second data;

means for applying a first orthogonal code to the first decoded signal to produce the first data; and

means for applying a second orthogonal code to the second decoded signal to produce the second data .

26. (Currently Amended) A receiver ~~A system~~ for demodulating first and second long-encoded, polarized communication nominally-orthogonal polarization signals that were transmitted from respective first and second transmission sources after having been encoded with a same long code, the receiver system comprising:

means for receiving the ~~encoded~~ first and second long-encoded, polarized communication nominally-orthogonal polarization signals; and

means for separating the first long-encoded, polarized communication signal from the second long-encoded, polarized communication signal in accordance with their respective polarizations to produce a first long-encoded communication signal and a second long-encoded communication signal;

means for applying a ~~the same~~ long code to the ~~received encoded~~ first and second long-encoded communication nominally-orthogonal polarization signals to produce a first decoded communication signal;

means for applying a long code to the second long-encoded communication signal to produce a second decoded communication signal;

means for applying a first orthogonal code to the first decoded communication signal to produce the first data; and

means for applying a second orthogonal code to the second decoded communication signal to produce the second data.

27. Canceled

28. Canceled

29. (Original) A communication system including the demodulating system of Claim 26 and further comprising:

means for encoding ~~both first and second nominally orthogonal polarization signals~~ data with a ~~same~~ long code at a first terminal to produce a first long-encoded signal;

means for applying a first polarization to the first long-encoded signal to produce a first long-encoded, polarized signal;

means for encoding second data with the long code at a second terminal to produce a second long-encoded signal;

means for applying a second polarization to the second long-encoded signal to produce a second long-encoded, polarized signal;

~~first~~ means for transmitting the first long-encoded, polarized ~~first nominally orthogonal polarization~~ signal from the first terminal ~~a first source~~ to a receiver ~~at least one destination~~; and

~~second~~ means for transmitting the second long-encoded, polarized ~~second nominally orthogonal polarization~~ signal from the second terminal ~~a second transmission source~~ to at least one the receiver destination.

30. Canceled